

ATTACHMENT A
Remarks

Claims 1-16 are pending in the present application. By this Amendment, Applicants have amended claims 1 and 5-11 and 12-14. Applicants respectfully submit that the present application is in condition for allowance based on the discussion which follows.

Claims 1, 2, 5-10, 13 and 14 were rejected under 35 U.S.C. § 112, second paragraph. During the Examiner Interview, Applicants' representative proposed claim amendments which the Examiner indicated would overcome the 35 U.S.C. § 112, second paragraph rejection of the claims. Accordingly, by this Amendment, Applicants have amended the claims as proposed thereby overcoming the 35 U.S.C. § 112, second paragraph, rejection to the claims.

Claims 1, 11, 15 and 16 were rejected under 35 U.S.C. § 102(b) or in the alternative under 35 U.S.C. § 103(a) as being obvious over Li U.S. Patent No. 5,783,495. Claims 2-10, 12-13 and 14 were rejected under various combinations of Li in view of Grant, McNeilly and Wanlass.

In order to more clearly recite Applicants' invention, Applicants have amended claim 1 to now recite an etching solution comprising hydrofluoric acid, water, and an organic acid, inorganic acid or organic solvent having a hetero atom wherein the etching solution has a ratio of an etch rate of a boron phosphosilicate glass film (BSG) or boron phosphosilicate glass / an etch rate of a thermal oxide film (THOX) at 25°C of 20 or higher. Thus, the present invention provides an etching solution which has an etch rate which is at least 20 times faster for a doped substrate, e.g., BSG, than a non-doped substrate, e.g., THOX.

Claim 1 currently amended is not anticipated by Li as Li fails to teach or suggest an etching solution including an organic acid, inorganic acid or organic solvent in combination with hydrofluoric acid and water. Further, Li fails to teach or suggest an etching solution which has an etch rate of BSG or boron phosphosilicate glass to an etch rate of THOX at 25°C of 20 or higher. Although Li teaches a hydrofluoric acid etching solution, Li fails to teach or suggest further including an inorganic acid, an organic acid or an organic solvent having a hetero atom within the ranges of 30% to 99% by weight. Further, Li fails to teach or suggest the claimed etch ratio of 20 or higher. Li merely teaches a maximum etch rate ratio of approximately 10.

Moreover, it would not be obvious to one of ordinary skill in the art to modify Li to have an etch rate ratio greater than 10. Li is specifically directed to reducing the etch rate ratio to around 2 using a HF solution with tetra ethyl ammonium hydroxide (TEAH) or tetra methyl ammonium hydroxide (TMAH). Thus, Li in fact teaches away from the present invention which is having an etch rate ratio of 20 or higher.

Furthermore, the presently claimed etching solution comprising HF, water, and an organic solvent is not obvious from the prior art. Although the Examiner had alleged that now canceled claim 4 which recited an etching solution comprising hydrofluoric acid, and an organic solvent would have been obvious from Li in view of Grant, it would not have been obvious to one of ordinary skill in the art to combine the individual teachings of Li with Grant. As discussed above, Li is directed specifically to reducing the etch rate ratio of a doped layer to a non-doped layer. In particular, Li is directed at having an etch rate ratio of approximately 2. Accordingly, it would not have been obvious to one of ordinary skill in the art to modify the hydrofluoric acid etching solution

of Li to increase its etch rate ratio from a disclosed maximum ratio of 10. Moreover, Li specifically uses tetra ethyl ammonium hydroxide or tetra methyl ammonium hydroxide to reduce the etch rate ratio down to approximately 2. Accordingly, one of ordinary skill in the art upon reading Li would not be motivated to modify its hydrofluoric acid etching solution to include an organic solvent.

Similarly, although the Examiner has alleged it would have been obvious to modify Li to include an inorganic acid citing McNeilly and Wanlass, there fails to be any suggestion in the art to motivate one of ordinary skill to combine Li with McNeilly or Wanlass, especially since Li teaches away from increasing an etch rate ratio greater than 10.

Based on the foregoing, Applicants respectfully submit that all pending claims are clear of the prior art.

In view of the foregoing, Applicants respectfully submit that the present application is in condition for allowance.

END REMARKS